

**REMARKS**

Claim 1 has been amended to recite “a niobium-containing seedlayer containing nitrogen.” Similarly, claims 12 and 20 have been amended.

Claims 1-3, 5-6, 9, 12-14 and 16-18 were rejected as being anticipated by Futamoto. Claims 10-11 and 20 were rejected as being anticipated by or, in the alternative, obvious over Futamoto. These rejections are respectfully traversed and should be withdrawn in light of the amendment of claims 1, 12 and 20. Futamoto does not disclose a niobium-containing seedlayer *containing nitrogen*. Note that claim 4, which recites “wherein the niobium-containing seedlayer comprises at least 5 atomic percent nitrogen” was not rejected over Futamoto.

Claims 1-4, 7-9, 11-15 and 18-19 were rejected as being obvious over Bian in view of Ohkubo. This rejection is respectfully traversed.

The Examiner acknowledges that Bian does *not* disclose a seedlayer having the claimed thickness of 1-40Å. Then, the Examiner states that Ohkubo “teaches that it is known in the art that the thickness of a seedlayer affects the coercivity of a magnetic medium” and relies on *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) for the proposition that “discovering an optimum value of a result effective variable involves only routine skill in the art.” Applicants respectfully submit that the Examiner’s reliance on *In re Boesch* in this case is incorrect.

In *In re Boesch* Appellants sought review of decision which sustained examiner’s rejection, under 35 USC 103, of appellants’ patent claims. The court held that appellants’ claims for nickel base alloys were properly rejected as obvious to one within skill of the art. Composition requirements of appellants’ claims, and requirements found in earlier patents, *overlapped*. Prior art suggested the kind of experimentation necessary to achieve the claimed

composition, including the proportional balancing described by appellants' equation.

Furthermore, the court held that discovery of an optimum value of result effective variable in a known process was ordinarily within the skill of the art. The court also held that a *showing of unexpected results could rebut a prima facie case of obviousness*.

Foremost, Applicants submit that unlike the situation in *In re Boesch*, in this case the claimed range of the seedlayer thickness does **not** overlap the ranges disclosed in the cited references.

The Federal Circuit in *In re Woodruff*, 919 F.2d 1575; 16 USPQ2d 1934 (Fed. Cir. 1990), cites *In re Boesch* and states:

The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. These cases [including *In re Boesch*] have consistently held that in such a situation, the applicant must show that the particular range is critical, *generally by showing that the claimed range achieves unexpected results relative to the prior art range*. [Emphasis added.]

Consistent with the decisions of *In re Woodruff* and *In re Boesch*, Applicants request the Examiner to refer to the Figure 3 and page 19, lines 16-22, of the specification (quoted below) for a showing of ***unexpected results***.

The effect of thickness of the NbN<sub>m</sub> seedlayer on remanent coercivity and SMNR is shown in Figure 3. Each of the sample recording media shown in Figure 3 were prepared in identical deposition environments with identical layered structure except that the NbN<sub>m</sub> seedlayers have different thickness as shown by the x-axis. *The recording media with the 30Å NbN<sub>m</sub> seedlayer had the highest Hcr and SMNR*. The samples with a 60Å or greater NbN<sub>m</sub>

seedlayer showed little if any difference in remanent coercivity than the control. [Emphasis added.]

Unlike the results shown in Figure 3 of the specification, the results shown in Figure 18 of Ohkubo show that the coercivity (Oe) continuously increases in the seedlayer thickness of 0-200Å *without* a highest point in coercivity in this range. Please note, “Consistent with the rule that all evidence of nonobviousness *must* be considered when assessing patentability, the PTO *must* consider comparative data in the specification in determining whether the claimed invention provides unexpected results.” *In re Soni*, 54 F.2d 746, 34 USPQ2d 1684 (Fed. Cir. 1995) (emphasis added).

Attached hereto is a marked-up version of the changes made to the claims by this amendment. The attached pages are captioned “Version with markings to show changes made.”

In light of this Amendment, a Notice of Allowance is respectfully solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952**, referencing docket number 146712002600.

Respectfully submitted,

Dated: February 21, 2003

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims:**

1. (Amended) A magnetic recording medium, comprising:  
  
a substrate,  
  
a niobium-containing seedlayer containing nitrogen having a thickness  
  
from about 1Å to about 40Å; and  
  
a magnetic layer.
  
12. (Amended) A method of making a magnetic recording medium comprising:  
  
depositing a niobium-containing seedlayer containing nitrogen on a  
  
substrate, wherein the seedlayer has a thickness from about 1Å to about 40Å; and  
  
depositing a magnetic layer.
  
20. (Amended) A magnetic recording medium comprising:  
  
a substrate; and  
  
means for maximizing the remanent coercivity of the recording medium by  
  
providing a niobium-containing seedlayer containing nitrogen.